

# PATTERN OF ROAD TRAFFIC ACCIDENT: A CASE STUDY OF HAMIRPUR DISTRICT IN HIMACHAL PRADESH (H.P)

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## ABSTRACT

*A road accident pattern study is useful in indentifying the causes of road accidents. In the present study Hamirpur district in Himachal Pradesh is selected for identification of the pattern of road accidents. The accidents data of the study area has been collected for past 6 years which include the accident particulars like day, date and time of the accident location, police station, number of vehicle involved, injury and number of person dead or injured. From the data collected, the accident pattern is studied and the causes of accidents along various road stretches are identified. It is found that 20% of the accidents took place at 3pm to 6pm of the day and these are the peak hours of the day, also the most accidents took place in year 2013.*

**Key words:** traffic, accidents, injuries, accident pattern.

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## 1. INTRODUCTION

With the development and globalization worldwide there is a need of dense road networks which could connects one place to another and hence there is a increase in the vehicles and hence results in increase in road accidents around the world. An estimated 65% rise in the number of accidents is expected over the next 20 years unless new prevention actions are taken (Gundogdu; 2009). In India over 1300000 persons are seriously injured on Indian road every year. India share 1% of the total vehicle present in the world but bears the burden of 6% of the total global vehicular accidents occurred in the world. In Himachal Pradesh, an average of 1350 traffic accidents occurs on national highways in which around 34.3 persons are killed per 100 persons, out of these 100 accidents 83 traffic accidents have occurred due to defect in road conditions.

According to WHO (2004) it should be noted that road accidents are a result of the combined effects of three factors, which are given below.

The road user characteristic

The vehicular characteristic

The environment includes the Road Environment and supervision of the system (Martin; 1993). The road safety can be illustrated in the literature as three E's which are enforcement, engineering and education. There should be mutual collaboration between these three E's for improving the level of road safety.

## 2. METHODOLOGY

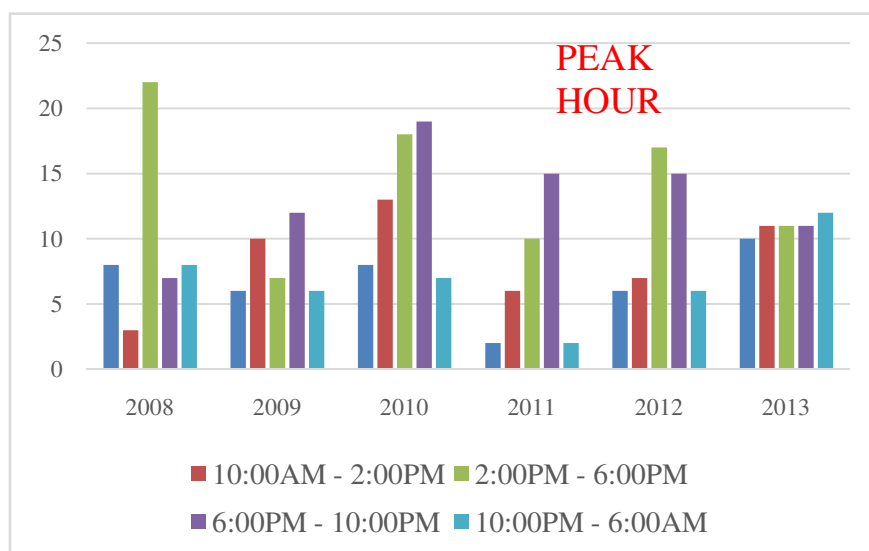
The study was conducted in Hamirpur district and accidental data is collected from the police department of Hamirpur. Also the field survey of the accidental location is done at different months of the year. The study is made for the reasons behind these accidents. The field survey of the traffic is also done at the prime locations. To collect traffic accidents data also questionnaire survey is conducted at different locations.

## 3. RESULTS AND ANALYSIS

The past six years traffic crashes, data has been collected from the police station of the Hamirpur district. This data contains the information related to date of accident, day and time of accident; police station belongs to the type of vehicle involved, number of vehicles involved, type of injury and number of male/female/child dead or injured.

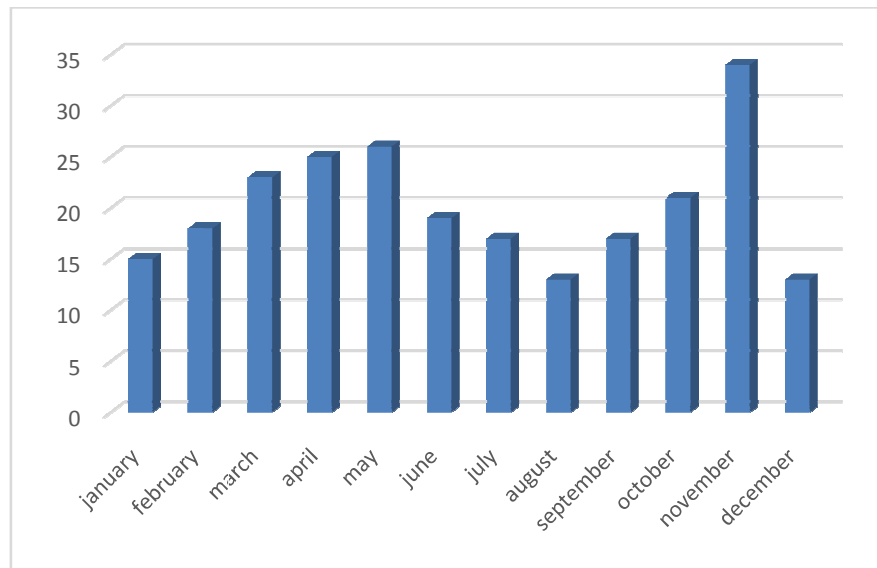
**Table 1** Accidental Data of Previous Years

S. No.	Years	No of Accidents	Death	Grievous Injury	Minor Injury
1.	2008	42	5	2	48
2.	2009	34	8	10	32
3.	2010	53	7	9	62
4.	2011	25	5	3	33
5.	2012	43	13	8	80
6.	2013	44	11	3	65



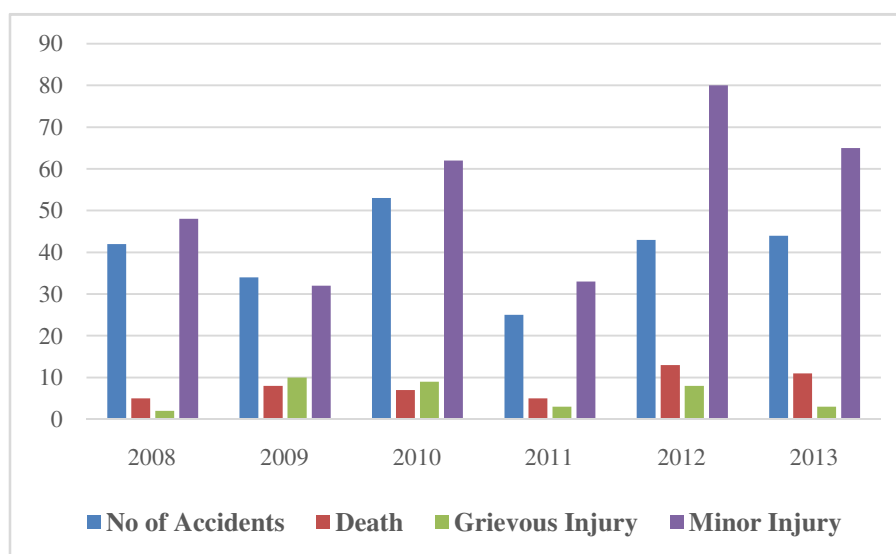
**Figure 1** Number of accident Vs Timings

It has been observed that maximum number of accidents occur during 2:00 PM to 10:00 PM and may be attributed to the combined rush of shopping, office coming hour rush, evening hour rush along with poor lighting.



**Figure 2** Monthly variation of accidents

Monthly wise accidental data have been collected and it is noted that the most of accidents take place is in the month of November. The reason behind the more number of accidents during November month is due to foggy weather. In march, April and may the accidents increases due to landslides in rainy season.



**Figure 3** Yearly Variation of Crashes and Injury Details

It is noted that the number of crashes is more in 2010, and 2011 has a minimum number of crashes whereas 2008, 2012, and 2013 have approximately the same number of accidents. But there is more number of injured people in 2012 with respect to 2010, where the number of crashes is more than 2012. Also the number death is increased in 2012, and 2013.

#### 4. CONCLUSION

In the present work it is tried to study the pattern of accidents in the study area. It can be concluded that the foggy weather and the carelessness of drivers is a factor that contributes in the accidents. The accident patterns of accidents are important to study and these outputs can be used by highway planners. If the factors can be studied in more details these can be used for designing of special vehicles for hilly regions.

## REFERENCES

- [1] Affum, J.K., Taylor, M.A., 1997. SELATM – “A GIS Based Program for Evaluating the Safety Benefits of Local Area Traffic Management Schemes”. *Transportation Planning and Technology* 21, 93–119.
- [2] Anderson T., 2006, “Comparison of Spatial Methods for Measuring Road Accident ‘Hotspots’: A Case Study of London”, *Journal of Maps*, New Zealand.
- [3] Erdogan, S., Yilmaz, I., Baybura, T. & Gullu, M., 2008. “Geographical Information Systems Aided Traffic Accident Analysis System Case Study: City of Afyonkarahisar”, *Accident Analysis and Prevention*, Vol. 40, p. 174-81. Epub2007 Jun 15.
- [4] Faghri, A. and Raman, N. (1995). A GIS-based Traffic Accident Information System. *Journal of Advanced Transportation*.29:321-334.
- [5] G, Apparao. Mallikarjunareddy, P., Raju, SSSV, G., 2013. “Identification of Accident Black Spots for National Highway Using GIS”, *International Journal of Scientific & Technology Research* Volume 2, Issue 2
- [6] Islam M. Abo Elnaga, Development of Traffic Accidents Prediction Models at Rural Highways in Egypt. *International Journal of Civil Engineering and Technology*, 5 (6), 2014, pp. 16-24.
- [7] Gharaibeh, N. G., Hicks, J.E. and J. P. Hall (1997). Analysis of Accident, Traffic, and Pavement Data. *Traffic Congestion and Traffic Safety in the 21st Century* 396-402.
- [8] Ghosh, S. K., Parida, M. and Uraon J. K. (2004). Traffic Accident Analysis for Dehradun City using GIS. *Institute of Town Planners, India (ITPI) Journal*; 1 : 3 (2004) 40-54
- [9] B.Naga Kiran, Dr. N. Kumara Swamy and Dr. C. Sashidhar, Prediction of Road Accident Modelling For Indian National Highways. *International Journal of Civil Engineering and Technology*, 8(1), 2017, pp. 789–802.
- [10] Gundogdu, I.B., 2009. Spatial analyst methods for urban planning-Scientific Research and Essay Vol.4 (12), pp. 1531-1535, December, 2009
- [11] Hamirpur district, Himachal Pradesh. Accessed on March 26, 2014 from [http://en.wikipedia.org/wiki/Hamirpur\\_district,\\_Himachal\\_Pradesh](http://en.wikipedia.org/wiki/Hamirpur_district,_Himachal_Pradesh)
- [12] Y. P. Raiwani and Pragya Baluni, Extraction of Road Accident Patterns in Uttarakhand Using Neural Network. *International Journal of Civil Engineering and Technology*, 5(8), 2014, pp. 159–168.